http://www.cas.org/support/stngen/stndoc/properties.html

```
=> s ethyl lactate/cn
L1            1 ETHYL LACTATE/CN

=> d

L1   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2008 ACS on STN
RN   97-64-3  REGISTRY
ED   Entered STN:  16 Nov 1984
CN   Propanoic acid, 2-hydroxy-, ethyl ester  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Lactic acid, ethyl ester (6CI, 8CI)
OTHER NAMES:
CN   (±)-Ethyl 2-hydroxypropionate
CN   (±)-Ethyl lactate
CN   (±)-Lactic acid ethyl ester
CN   2-Hydroxypropanoic acid ethyl ester
CN   Actylol
CN   Acytol
CN   DL-Ethyl lactate
CN   dl-Lactic acid ethyl ester
CN   Ethyl α-hydroxypropionate
CN   Ethyl 2-hydroxypropanoate
CN   Ethyl 2-hydroxypropionate
CN   Ethyl lactate
CN   Ethyl rac-lactate
CN   NSC 8850
CN   PBR 40
CN   Purasolv ELS
CN   Solactol
CN   Vertec ELS
CN   VertecBio EL
DR   2676-33-7
MF   C5 H10 O3
CI   COM
LC   STN Files:   AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOSIS, BIOTECHNO, CA,
       CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST,
       CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DRUGU, EMBASE, GMELIN*,
       HSDB*, IFICDB, IFIPAT, IFIUDB, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT,
       PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, USPAT2, USPATFULL,
       USPATOLD, VETU
         (*File contains numerically searchable property data)
     Other Sources:   DSL**, EINECS**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)
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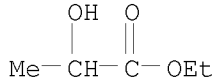

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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            3440 REFERENCES IN FILE CA (1907 TO DATE)
              43 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
            3451 REFERENCES IN FILE CAPLUS (1907 TO DATE)
              49 REFERENCES IN FILE CAOLD (PRIOR TO 1967)


=> file caplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                       7.61       7.82

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FILE COVERS 1907 - 9 Sep 2008  VOL 149 ISS 11
FILE LAST UPDATED: 8 Sep 2008  (20080908/ED)

Caplus now includes complete International Patent Classification (IPC)
reclassification data for the second quarter of 2008.

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=> s 97-64-3/prep
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       4633127 PREP/RL
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=> s 97-64-3/proc
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       4424658 PROC/RL
L3         299 97-64-3/PROC
                (97-64-3 (L) PROC/RL)

=> s 97-64-3/pur
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        288773 PUR/RL
L4          29 97-64-3/PUR
                (97-64-3 (L) PUR/RL)
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L5         533 L2 OR L3 OR L4

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        114318 LACTIC
       4669411 ACID
         98199 LACTIC ACID
                (LACTIC(W)ACID)
L6          68 L5 AND ETHANOL AND LACTIC ACID

=>

=> s l6 and catalyst
        813985 CATALYST
L7          34 L6 AND CATALYST

=> s l7 and flash?
         75030 FLASH?
L8            1 L7 AND FLASH?

=> s l7 and py<2002
      21968360 PY<2002
L9          13 L7 AND PY<2002

=> d l8 ibib abs hitstr

L8   ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2004:472091  CAPLUS
DOCUMENT NUMBER:         141:39933
TITLE:                   Continuous esterification process for the preparation
                         of ethyl lactate from lactic acid
                         and ethanol
INVENTOR(S):             Tretjak, Serge; Burtin, Elie; Teissier, Remy
PATENT ASSIGNEE(S):      Atofina, Fr.
SOURCE:                  Fr. Demande, 12 pp.
                         CODEN: FRXXBL
DOCUMENT TYPE:           Patent
LANGUAGE:                French
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
     FR 2848209           A1    20040611    FR 2002-15348          20021205
     FR 2848209           B1    20061013
     CA 2508125           A1    20040624    CA 2003-2508125        20031205
     WO 2004052825        A2    20040624    WO 2003-FR3598         20031205
     WO 2004052825        A3    20040715
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
             PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
             TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
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KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

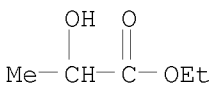
AU 2003298421	A1	20040630	AU 2003-298421	20031205
AU 2003298421	B2	20080424		
EP 1569891	A2	20050907	EP 2003-796169	20031205
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
BR 2003017047	A	20051025	BR 2003-17047	20031205
CN 1720215	A	20060111	CN 2003-80104917	20031205
JP 2006509024	T	20060316	JP 2004-558173	20031205
US 20060041165	A1	20060223	US 2005-537422	20050602
MX 2005PA05962	A	20060208	MX 2005-PA5962	20050603
KR 762773	B1	20071004	KR 2005-710224	20050604
PRIORITY APPLN. INFO.:			FR 2002-15348 A	20021205
			WO 2003-FR3598 W	20031205

OTHER SOURCE(S): CASREACT 141:39933

AB The invention relates to a continuous method of preparation of Et lactate by lactic acid esterification with ethanol in the presence of an esterification catalyst followed by product purification through extraction and distillation using a fractional distillation column. A process flow diagram is presented.

IT 97-64-3P, Ethyl lactate
RL: CPS (Chemical process); EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PREP (Preparation); PROC (Process)
(continuous esterification process for the preparation of Et lactate from lactic acid and ethanol)

RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)

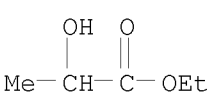


REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

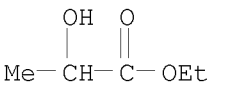
=> d l9 1-13 ibib abs hitstr

L9 ANSWER 1 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:826886 CAPLUS
DOCUMENT NUMBER: 136:401440
TITLE: Catalytic esterification of lactic acid with sodium bisulfate
AUTHOR(S): Wen, Rui-ming; You, Pei-qing; Yu, Shan-xin
CORPORATE SOURCE: Department of Chemistry, Yiyang Teachers College, Yiyang, 413049, Peop. Rep. China
SOURCE: Hecheng Huaxue (2001), 9(4), 375-378
CODEN: HEHUE2; ISSN: 1005-1511
PUBLISHER: Hecheng Huaxue Bianjibu

DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 136:401440
AB The study on sodium bisulfate used in the esterification of lactic acid and various alcs. is reported and 11 kinds of lactates were synthesized. The properties of the lactates, such as b.p.(b.p.), refractive index (nD20), IR and 1H NMR were measured.
IT 97-64-3P, Ethyl lactate
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(catalytic esterification of lactic acid with sodium bisulfate)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



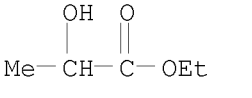
L9 ANSWER 2 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:55181 CAPLUS
DOCUMENT NUMBER: 135:34574
TITLE: Synthesis of ethyl lactate by esterification with solvent drying
AUTHOR(S): Liu, Rong-fang; Xiao, Xiu-feng; Wang, Qin-ping; Zhu, Ze-shan
CORPORATE SOURCE: Department of Chemistry, Institute of Applied Chemistry, Fujian Normal University, Fuzhou, 350007, Peop. Rep. China
SOURCE: Jingxi Huagong (2000), 17(12), 714-716
CODEN: JIHUFJ; ISSN: 1003-5214
PUBLISHER: Jingxi Huagong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Preparation of Et lactate from lactic acid and EtOH was studied. Esterification reaction was carried out in a Soxhlet extraction apparatus, with p-MeC6H4SO3H as catalyst and CaO, mol. sieve 3A or MgSO4 as cyclohexane solvent dehydrating agent. Various reaction parameters were also examined The productivity of Et lactate was improved by including a dehydrating agent in the reaction system. The productivity was increased to a highest point and then reduced slightly with increasing amount of catalyst and mol. ratio EtOH/lactic acid and prolonging the reaction time. The productivity of Et lactate reached 84.5% under the following optimum conditions: lactic acid 0.1 mol, EtOH 0.3 mol, p-MeC6H4SO3H 1.0 g, cyclohexane 50 mL, CaO 18.7 g and reaction time 2 h.
IT 97-64-3P, Ethyl lactate
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of Et lactate by esterification of lactic acid with ethanol with cyclohexane solvent drying)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



L9 ANSWER 3 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:472757 CAPLUS
DOCUMENT NUMBER: 133:58542
TITLE: Method of using natural materials for synthesizing ethyl lactate
INVENTOR(S): Meng, Yongcai; Luo, Tong
PATENT ASSIGNEE(S): Yin, Changshu, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1229790	A	19990929	CN 1998-111914	19980319 <--

PRIORITY APPLN. INFO.: CN 1998-111914 19980319
AB The process comprises preparing lactic lactone for lactic acid, esterifying with ethanol in the presence of strongly acidic macroporous polystyrene exchange resin/AlCl3 (0.9-1.1:1) complex catalyst at 80°+3° for >2 h, distilling at 120°+5° to obtain crude ester while adding ethanol in dropwise, and rectifying by conventional method. The ratio of complex catalyst to lactic acid is 0.1-0.15%. The mole ratio of lactic acid to ethanol is 1:1-1.5.
IT 97-64-3P, Ethyl lactate
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of Et lactate)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



L9 ANSWER 4 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:164652 CAPLUS
DOCUMENT NUMBER: 132:165940
TITLE: Preparation of pyruvic acid and its calcium salt from lactic acid
INVENTOR(S): Ding, Hangjun; Cheng, Yanxiang; Gao, Jingxi
PATENT ASSIGNEE(S): Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

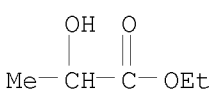
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1188100	A	19980722	CN 1997-112512	19970708 <--

PRIORITY APPLN. INFO.: CN 1997-112512 19970708

AB The process comprises esterifying lactic acid with ethanol to obtain Et lactate, adding catalyst and petroleum ether as phase separating agent, oxidizing with oxidant at 0-20°, 1-30 mmHg and pH 3-13, collecting petroleum ether phase, recovering solvent, distilling at 56-57° and 20 mmHg to obtain Et pyruvate, saponifying with Ca(OH)2 to obtain Ca pyruvate, adding stabilizer, and drying in vacuum. The process may comprises oxidizing lactic acid with oxidant in Et ether at 0-20°, 1-30 mmHg and pH 3-13, recovering solvent, distilling at 70.8° and 20 mmHg to obtain pyruvic acid, neutralizing with Ca(OH)2 solution, and drying in vacuum to obtain Ca pyruvate. The oxidant is selected from KMnO4, H2O2, CrO3, and K2Cr2O7, etc.

IT 97-64-3P, Ethyl lactate
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of pyruvic acid and its calcium salt from lactic acid)

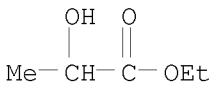
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



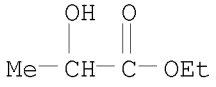
L9 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:722057 CAPLUS
DOCUMENT NUMBER: 132:280844
TITLE: Comparison of catalysts in lactic acid esterification
AUTHOR(S): Li, Ru-Zhen; Su, Tao
CORPORATE SOURCE: Guangxi Vocational Technical Institute, Nanning, 530227, Peop. Rep. China
SOURCE: Guangxi Huagong (1999), 28(3), 35-37
CODEN: GUHUF2; ISSN: 1003-0840
PUBLISHER: Guangxi Huagong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB FeCl3, SnCl2, SnCl4, NiCl2, AlCl3, CuCl2, CrCl3, H2SO4, CuSO4, ZnSO4, strong acid ion exchange resin, and solid acid were employed as catalysts for esterification of lactic acid with ethanol at <100° without agitation. The results showed that the lowest content of Et lactate was 72% of the highest one with various catalysts.

The order of catalytic effect was H2SO4, SnCl4, AlCl3, etc.
IT 97-64-3P, Ethyl lactate
RL: SPN (Synthetic preparation); PREP (Preparation)
(catalysts for esterification of lactic acid with ethanol)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



L9 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:435756 CAPLUS
DOCUMENT NUMBER: 132:139052
TITLE: Preparation of C1-C5 lactates and lactide
AUTHOR(S): Su, Tao; Pang, Qi
CORPORATE SOURCE: College of Chemistry and Chemical Engineering, Guangxi Univ., Nanning, 530004, Peop. Rep. China
SOURCE: Huagong Shikan (1999), 13(4), 7-12
CODEN: HUSHFT; ISSN: 1002-154X
PUBLISHER: Huagong Shikan Zazhishe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB C1-C5 alcs. (methanol, ethanol, isopropanol, n- butanol, isobutanol, and isoamyl alc.) esterified D,L-lactic acid to form corresponding D,L-lactates, the lactates were heated in presence of stannous caprylate catalyst in N2 or CO2 atmosphere and/or heated under -0.098 MPa without introducing N2 or CO2 to obtain racemic- and meso- lactide. The yield of C4-C5 lactate was >80% without using entraining agent. The racemic-lactide was the target product, and the meso-one was recovered as a raw material. The single pass yield of racemic-lactide was 22-35%, and the single pass consumption rates of the lactates (except Me lactate) reached 26%-38%.
IT 97-64-3P, Ethyl lactate
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation of C1-C5 lactates and lactide)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



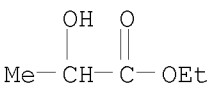
L9 ANSWER 7 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:291081 CAPLUS
DOCUMENT NUMBER: 128:296124
ORIGINAL REFERENCE NO.: 128:58673a,58676a
TITLE: Synthesis of ethyl lactate catalyzed by modified

zirconium oxide
AUTHOR(S): Li, Dechang; Huang, Chunlin; Wei, Shanhuai; Zou, Hong
CORPORATE SOURCE: Guangxi Res. Inst. of Chemical Ind., Nanning, 530001, Peop. Rep. China
SOURCE: Guangxi Huagong (1997), 26(4), 16-18
CODEN: GUHUF2; ISSN: 1003-0840
PUBLISHER: Guangxi Huagong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB A new technique employing modified zirconium oxide to replace the concentrated sulfuric acid as catalyst in synthesis Et lactate is studied. Good catalytic quality is obtained, and corrosion is avoided. Yield rate reaches 90%. Modified zirconium oxide is recyclable and easy to be separated from product.

IT 97-64-3P, Ethyl lactate
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of Et lactate by esterification of lactic acid by ethanol using modified zirconium oxide as catalyst)

RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



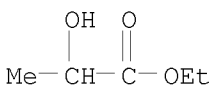
L9 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:994383 CAPLUS
DOCUMENT NUMBER: 124:59841
ORIGINAL REFERENCE NO.: 124:11217a,11220a
TITLE: Process of manufacture of ethyl lactate
INVENTOR(S): Wu, Menghai; He, Weimin
PATENT ASSIGNEE(S): State-Run Wujiang Perfumery, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1102180	A	19950503	CN 1993-118797	19931028 <--
CN 1032855	C	19960925		

PRIORITY APPLN. INFO.: CN 1993-118797 19931028

AB The process comprises mixing 80% lactic acid and 92-93% ethanol in weight ratio 1:(0.6-1.6), catalytic esterification using 3-acidic component catalyst, de-watering using anhydrous ethanol (ethanol content 99.1-99.6%), recovering ethanol, and distillation under a reduced pressure. The catalyst is formed by combining H-type acidic resin, complex of glycerin (or ethylene glycol) and boric acid, sodium dihydrogen phosphate in weight ratio 1:(0.5-1.0):(0.1-0.2). The products are used in food

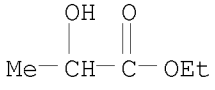
industry.
IT 97-64-3P, Ethyl lactate
RL: IMF (Industrial manufacture); PREP (Preparation)
(process of manufacture of Et lactate)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



L9 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:511804 CAPLUS
DOCUMENT NUMBER: 122:264918
ORIGINAL REFERENCE NO.: 122:48361a,48364a
TITLE: Preparation of lactic acids by carbonylation of acetaldehydes
INVENTOR(S): Hirai, Koichi; Bando, Yasuo
PATENT ASSIGNEE(S): Ube Industries, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

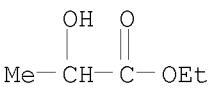
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07041455	A	19950210	JP 1993-190338	19930730 <--

PRIORITY APPLN. INFO.: JP 1993-190338 19930730
OTHER SOURCE(S): CASREACT 122:264918
AB In preparation of lactic acids from acetaldehydes, CO, and H2O or alcs., the acetaldehydes are carbonylated by CO in the presence of 70-95 volume% H2SO4. A mixture of MeCHO, H2SO4, and H2O was treated with CO at room temperature under 40 atm for 5 h to give 56.5% lactic acid.
IT 97-64-3P, Ethyl lactate
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of lactic acids by carbonylation of acetaldehydes by CO and H2O or alcs. with H2SO4 catalyst)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)

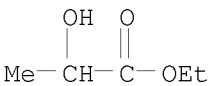


L9 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1991:538586 CAPLUS

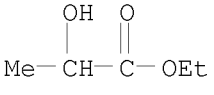
DOCUMENT NUMBER: 115:138586
ORIGINAL REFERENCE NO.: 115:23747a,23750a
TITLE: Cationic exchange resin having strong acidity used as a catalyst in the esterification of lactic acid
AUTHOR(S): Li, Yongguang; Wang, Jingmin
CORPORATE SOURCE: Taiyuan Univ. Technol., Taiyuan, Peop. Rep. China
SOURCE: Taiyuan Gongye Daxue Xuebao (1990), 21(4), 43-6
CODEN: TGDXEZ; ISSN: 1000-1611
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Et and Bu lactates were prepared using strongly acidic cation exchangers, 732 and D72, as catalysts. When the alc.-acid molar ratio was 3.5:1 and the catalyst concentration was 60% that of lactic acid, the yield of the lactates was >90%.
IT 97-64-3P, Ethyl lactate
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation of, catalysts for, strongly acidic cation exchangers as)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



L9 ANSWER 11 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1989:215145 CAPLUS
DOCUMENT NUMBER: 110:215145
ORIGINAL REFERENCE NO.: 110:35701a,35704a
TITLE: Application of macroporous cation exchange resin in the synthesis of ethyl lactate
AUTHOR(S): Chen, Min; Jiang, Peihua; Quan, Yi; Xia, Tianxi; Zhang, Hao
CORPORATE SOURCE: Dep. Org. Chem. Eng., Jiangsu Inst. Chem. Technol., Changzhou, Peop. Rep. China
SOURCE: Lizi Jiaohuan Yu Xifu (1988), 4(3), 184-9
CODEN: LJYXE5; ISSN: 1001-5493
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Et lactate was prepared by esterification of lactic acid with EtOH in the presence of sulfonated styrenated-type cation exchanger as catalyst. Factors affecting the reaction were studied including reaction temperature, molar ratio of the reactants, flow rate, and height of the column bed. Under optimal reaction conditions, the total yield could reach >80%.
IT 97-64-3P, Ethyl lactate
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation of, catalysts for, sulfonated styrenated-type cation exchange resins as)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



L9 ANSWER 12 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1987:498561 CAPLUS
DOCUMENT NUMBER: 107:98561
ORIGINAL REFERENCE NO.: 107:16073a,16076a
TITLE: Recovery of biologically produced chemicals: regeneration of adsorbent beds by entrainer distillation and/or esterification directly on the bed
AUTHOR(S): Sanchez, Paul A.; Kawano, Yoshinobu; King, C. Judson
CORPORATE SOURCE: Dep. Chem. Eng., Univ. California, Berkeley, CA, 94720, USA
SOURCE: Industrial & Engineering Chemistry Research (1987), 26(9), 1880-7
CODEN: IECRED; ISSN: 0888-5885
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Two approaches are explored for regeneration of adsorbent beds used for recovery of carboxylic acids and other polar orgs. from aqueous solution In the first, entrainer distillation is carried out directly on the bed. A solvent vapor is fed to the top of the bed, and the overhead vapor is condensed and withdrawn. Coadsorbed water can be separated from the adsorbed solute in this way. In the second, esterification of an adsorbed carboxylic acid occurs on the adsorbent bed. Certain oxidation methods provide activated carbons which retain good adsorbent properties while simultaneously being effective catalysts for esterification. The ester is more readily removed by vaporization or solvent leaching than is the precursor acid. Acetic acid with MeOH and EtOH and lactic acid with EtOH and BuOH are studied.
IT 97-64-3P, Ethyl lactate
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, on active carbon, regeneration of adsorbent beds by entrainer distillation in relation to)
RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)



L9 ANSWER 13 OF 13 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1987:442048 CAPLUS
DOCUMENT NUMBER: 107:42048
ORIGINAL REFERENCE NO.: 107:7021a,7024a
TITLE: Preparation of ethyl lactate by a solid catalyst - LH-8561
AUTHOR(S): He, Xingtao; Qin, Shidong; Liu, Limin

CORPORATE SOURCE: Hunan Norm. Univ., Changsha, Peop. Rep. China
SOURCE: Hunan Shifan Daxue Ziran Kexue Xuebao (1986), 9(4), 40-5
CODEN: HSDXEL; ISSN: 1000-2537
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Et lactate was prepared by reaction of lactic acid with EtOH using LH 8561 solid catalyst and PhMe as solvent with continual removal of water. The catalytic efficiency increased with increasing catalyst concentration up to 10%. This catalyst could be used repeatedly and showed high selectivity.

IT 97-64-3P, Ethyl lactate
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation of, catalysts for)

RN 97-64-3 CAPLUS
CN Propanoic acid, 2-hydroxy-, ethyl ester (CA INDEX NAME)